

Figure 21 depicts an example of the message table. This table allows the CCM to alter information in outgoing messages. Message type is used to enter the table, and it represents the outgoing standard SS7 message type. The parameter is the pertinent parameter within the outgoing SS7 message. The indexes point to various entries in the trunk group table and determine if parameters can be unchanged, omitted, or modified in the outgoing messages.

Those skilled in the art will appreciate that variations from the specific embodiments disclosed above are contemplated by the invention. The invention should not be restricted to the above embodiments, but should be measured by the following claims.

CLAIMS

What is claimed is:

1. A communication system comprising:

a first signaling processor configured to receive and process call signaling to generate and transfer a first control message indicating an identifier; and

a first interworking unit configured to receive voice-band communications and the first control message, determine if initial voice-band processing is required, perform the initial voice-band processing if required, convert the voice-band communications into asynchronous communications with the identifier and with a processing indicator indicating if the initial voice-band processing was performed, and transfer the asynchronous communications.

2. The communication system of claim 1 further comprising a second interworking unit configured to receive the asynchronous communications, convert the asynchronous communications into the voice-band communications, determine if the initial voice-band processing was performed based on the processing indicator, perform additional voice-band processing if the initial voice-band processing was performed, and transfer the voice-band communications.

3. The communication system of claim 2 wherein the initial voice-band processing comprises encryption and the additional voice-band processing comprises decryption.

4. The communication system of claim 2 wherein the initial voice-band processing comprises compression and the additional voice-band processing comprises decompression.

5. The communication system of claim 1 wherein the initial voice-band processing comprises echo cancellation.
6. The communication system of claim 1 wherein the identifier indicates an asynchronous transfer mode connection, the asynchronous communications comprise asynchronous transfer mode communications, and the first interworking unit is configured to transfer the asynchronous transfer mode communications over the asynchronous transfer mode connection.
7. The communication system of claim 6 wherein the processing indicator comprises an asynchronous transfer mode convergence sublayer indicator.
8. The communication system of claim 1 wherein the call signaling comprises an initial address message.
9. The communication system of claim 1 wherein:
 - the first signaling processor is configured to receive and process the call signaling to generate and transfer the first control message indicating a type of the initial voice band processing; and
 - the first interworking unit is configured to determine if the initial voice-band processing is required and perform the type of the initial voice-band processing based on the first control message.

10. The communication system of claim 1 wherein:

the first signaling processor is configured to receive and process the call signaling to generate and transfer a signaling message indicating the identifier; and further comprising:

a second signaling processor configured to receive and process the signaling message to generate and transfer a second control message indicating the identifier; and

a second interworking unit configured to receive the asynchronous communications and the second control message, convert the asynchronous communications into the voice-band communications, determine if the initial voice-band processing was performed based on the processing indicator, perform additional voice-band processing if the initial voice-band processing was performed, and transfer the voice-band communications.

11. A communication system comprising:

a first signaling processor configured to receive and process call signaling to generate and transfer a first control message and a signaling message both indicating an identifier and a type of voice band processing;

a second signaling processor configured to receive and process the signaling message to generate and transfer a second control message indicating the identifier and the type of the voice band processing;

a first interworking unit configured to receive voice-band communications and the first control message, and in response to the first control message, to perform initial voice-band processing, convert the voice-band communications into asynchronous communications with the identifier and with a processing indicator indicating that the initial voice-band processing was performed, and transfer the asynchronous communications; and

a second interworking unit configured to receive the asynchronous communications and the second control message, determine if the initial voice-band processing was performed based on the processing indicator, and in response to the second control message, to convert the asynchronous communications into the voice-band communications, perform additional voice-band processing if the initial voice-band processing was performed, and transfer the voice-band communications.

12. The communication system of claim 11 wherein the signaling message comprises an initial address message.

13. The communication system of claim 11 wherein the initial voice-band processing comprises encryption and the additional voice-band processing comprises decryption.

14. The communication system of claim 11 wherein the initial voice-band processing comprises compression and the additional voice-band processing comprises decompression.

15. The communication system of claim 11 wherein the initial voice-band processing comprises echo cancellation.

16. The communication system of claim 11 wherein the identifier indicates an asynchronous transfer mode connection, the asynchronous communications are asynchronous transfer mode communications, and the first interworking unit is configured to transfer the asynchronous transfer mode communications over the asynchronous transfer mode connection.

17. The communication system of claim 16 wherein the processing indicator comprises an asynchronous transfer mode convergence sublayer indicator.

18. The communication system of claim 11 wherein the call signaling is an initial address message.

19. A method of operating a communication system, the method comprising:

receiving and processing call signaling, and in response, generating and transferring a first control message indicating an identifier;

receiving voice-band communications and the first control message;

determining if initial voice-band processing is required and performing the initial voice-band processing if required;

converting the voice-band communications into asynchronous communications with the identifier and with a processing indicator indicating if the initial voice-band processing was performed; and

transferring the asynchronous communications.

20. The method of claim 19 further comprising:

receiving the asynchronous communications:

converting the asynchronous communications into the voice-band communications;

determining if the initial voice-band processing was performed based on the processing indicator and performing additional voice-band processing if the initial voice-band processing was performed; and

transferring the voice-band communications.

21. The method of claim 20 wherein the initial voice-band processing comprises encryption and the additional voice-band processing comprises decryption.

22. The method of claim 20 wherein the initial voice-band processing comprises compression and the additional voice-band processing comprises decompression.

23. The method of claim 19 wherein the initial voice-band processing comprises echo cancellation.

24. The method of claim 19 wherein the identifier indicates an asynchronous transfer mode connection, the asynchronous communications comprise asynchronous transfer mode communications, and transferring the asynchronous communications comprises transferring the asynchronous transfer mode communications over the asynchronous transfer mode connection.

25. The method of claim 24 wherein the processing indicator comprises an asynchronous transfer mode convergence sublayer indicator.

26. The method of claim 19 wherein the call signaling comprises an initial address message.

27. The method of claim 19 wherein:

generating the first control message comprises generating the first control message indicating a type of the initial voice band processing; and

determining if the initial voice-band processing is required and performing the initial voice-band processing comprises determining if the initial voice-band processing is

required and performing the initial voice-band processing based on the first control message.

28. The method of claim 19 further comprising:

receiving and processing the call signaling to generate and transfer a signaling message indicating the identifier;

receiving and processing the signaling message, and in response, generating and transferring a second control message indicating the identifier;

receiving the asynchronous communications and the second control message;

converting the asynchronous communications into the voice-band communications;

determining if the initial voice-band processing was performed based on the processing indicator and performing additional voice-band processing if the initial voice-band processing was performed; and

transferring the voice-band communications.

29. A method of operating a communication system, the method comprising:

receiving and processing call signaling, and in response, generating and transferring a first control message and a signaling message both indicating an identifier and a type of voice band processing;

receiving and processing the signaling message to generate and transfer a second control message indicating the identifier and the type of the voice band processing;

receiving voice-band communications and the first control message;

performing initial voice-band processing in response to the first control message;

in response to the first control message, converting the voice-band communications into asynchronous communications with the identifier and with a processing indicator indicating that the initial voice-band processing was performed;

transferring the asynchronous communications;

receiving the asynchronous communications and the second control message;

determining if the initial voice-band processing was performed based on the processing indicator;

converting the asynchronous communications into the voice-band communications in response to the second control message;

in response to the second control message, performing additional voice-band processing if the initial voice-band processing was performed; and

transferring the voice-band communications.

30. The method of claim 29 wherein the signaling message comprises an initial address message.

31. The method of claim 29 wherein the initial voice-band processing comprises encryption and the additional voice-band processing comprises decryption.

32. The method of claim 29 wherein the initial voice-band processing comprises compression and the additional voice-band processing comprises decompression.

33. The method of claim 29 wherein the initial voice-band processing comprises echo cancellation.

34. The method of claim 29 wherein the identifier indicates an asynchronous transfer mode connection, the asynchronous communications comprise asynchronous transfer mode communications, and transferring the asynchronous communications comprises transferring the asynchronous transfer mode communications over the asynchronous transfer mode connection.

35. The method of claim 34 wherein the processing indicator comprises an asynchronous transfer mode convergence sublayer indicator.

36. The method of claim 29 wherein the call signaling is an initial address message.